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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,580	12/30/2005	Nobuo Kimura	20241/0202878-US0	1723
7278	7590	01/05/2009	EXAMINER	
DARBY & DARBY P.C.			KATZ, VERA	
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Church Street Station			ART UNIT	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/533,580	<b>Applicant(s)</b> KIMURA ET AL.	
	<b>Examiner</b> Vera Katz	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,13-15,23-29,43,44,54-56,58,65 and 67 is/are pending in the application.
- 4a) Of the above claim(s) 54-56,58, 65 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,13-15,23-29,43 and 44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/02/2005, 07/13/2005, 03/08/2007</u> .                      | 6) <input type="checkbox"/> Other: ____.                          |



**DETAILED ACTION**

***Election/Restrictions***

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 1, 2, 13-15, 23-29, 43-44 and 67, drawn to a dispersoid having metal-oxide bonds.

Group II, claims 54-56, 58, 65 and 67, drawn to a metal-oxide film.

2. The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Groups I-II each include the common technical features expressed in claim 1. However, the technical features of claim 1 do not constitute a special technical feature because they are not a contribution over the prior art. The references cited in the International Search report, dated February 23, 2004 and US Patent 6235260 show a dispersoid having metal-oxide bonds as set forth in claim 1.

3. During a telephone conversation with Flynn Barrison, reg. No. 53,970 on 12/16/08 a provisional election was made with traverse to prosecute the invention of Group I, claims 1, 2, 13-15, 23-29 and 43-44. Affirmation of this election must be made by applicant in replying to this Office action. Claims 54-56, 58, 65 and 67 are withdrawn

Art Unit: 1794

from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 13, 26 and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 13 recites “and /or a dispersion stabilizer” This terminology renders the scope of the claim indefinite.

Claim 26 recites “a concentration that is from 40% to 1% of the saturation solubility of water a mixed solvent, etc.” The term is unclear and is not explained in the disclosure. For compact prosecution claim 26 is examined as the given range is the concentration of water in the mixed solvent.

Claim 26, depends on claim 43 and recites range of between 0 and 40 nm. This range is broader than those of claim 43.

***Examiner Note***

6. The Examiner notes that claims 1, 2, 13-15, 23-29 and 43-44 are product by process claims. “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process”. (*In re Thorpe*, 227 USPQ 964,966). Once the examiner provided a rationale tending to show that the claimed product appears to be the same or similar to that of prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious different between the claimed product and the prior art product (*In re Marosi*, 710 F.2d 798,802,218 USPQ 289,292 (Fed. Cir. 1983), MPEP 2113).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Laid-open Patent Application No. 10-298769 A, cited in the instant application. The reference teaches a dispersoid, having metal-oxygen bonds, for

Art Unit: 1794

example, indium oxide. This dispersoid is obtained by mixing a metal compound having at least three hydrolysable groups, for example, indium alkoxide, such as  $\text{In}(\text{OCH}_3)_3$  or others, see examples 1-14 of Table 1 (machine translation). It is mixed with a given amount of water in the absence of a base or dispersion stabilizer and it is mixed at the temperature below  $0^\circ\text{C}$ , for example,  $-75^\circ\text{C}$ ; [0032-0033]. The molar ratio of water to metal compound is 0.6 and 0.8 and 1 mole/mole of metal compound; [0033 and 0046]. These values are within ranges of claims 1 and 2 of instant application.

8. Claims 1, 2 and 13, 14, 15, 23, 27, 28 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Toki (6235260).

Toki teaches a dispersoid, having metal-oxygen bonds, for example, tin or indium oxide. This dispersoid is obtained by mixing a metal compound having at least three hydrolysable groups, for example, Ti or indium alkoxide, such as  $\text{In}(\text{OCH}_3)_3$  or tin alkoxide, see examples of Table 1. It is mixed with a given amount of water in the absence of a base or dispersion stabilizer and it is mixed at the temperature below  $0^\circ\text{C}$ , for example,  $-75^\circ\text{C}$ ; [col.7, line 30]. The molar ratio of water to metal compound is, for example 0.5 and 1 mole/mole of metal compound; these values are within ranges of claims 1 and 2 of the instant application; [tables 1 and 4].

Considering claims 13, and 14, Toki teaches a dispersoid having metal-oxygen bonds, obtained by mixing in the absence of a stabilizer a partial hydrolysate with water. Examples 27-42 of col.12 disclose alkoxides, having at least three hydrolysable groups added first to ethanol in the absence of acid, base and stabilizer. This mixture is considered to be a partial. The hydrolysate is mixed with a mixture of organic solvent

Art Unit: 1794

and water, the temperature is  $-75^{\circ}\text{C}$ , which is below  $0^{\circ}\text{C}$  and below  $-20^{\circ}\text{C}$ , see Table 4.

A homogeneous sol was prepared and it is considered to be prepared without aggregation; [col. 12, line 60]. The ethanol used to prepare a partial hydrolysate at least inherently contains some water. The amount of added water to the solution in these examples is 0.6 mole/mole. This value is within the range. The water used in the original ethanol is not counted.

Considering claim 15, the reference teaches that metal alkoxide hydrolysis at the temperature of  $-20^{\circ}\text{C}$  without stabilizing and the given temperature may be below  $-20^{\circ}\text{C}$ ; [col.7, lines 26-31].

Considering claim 23, the reference teaches that after cooling the mixed solutions to predetermined temperature the solutions are mixed and returned to room temperature; [col.12, lines 55-59].

Considering claims 27-29, the water is added in a some divided portions to a metal compound, for instance, examples 27 to 42 teach that in the first step the water is added to the mixed separate solution of water-ethanol; the following step is mixing both metal compound solution and the water-ethanol solution. The temperature is  $-75^{\circ}\text{C}$ , which is below  $0^{\circ}\text{C}$ . The water is added in the amount of 0.6 mole/mole, which is within range of instant application. The step of admixing takes place at the temperature below  $0^{\circ}\text{C}$ ; [col. 12, lines 49-58].

9. Claims 24-26 and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Clark (48013990). Clark discloses a dispersoid having metal-oxide bonds, obtained by mixing a metal compound having at least three hydrolysable metal-



Art Unit: 1794

oxide bonds, for example, hydrolyzing aluminum sec-butoxide, with water in a solution diluted with a hydrocarbon solvent and an alcohol solvent (alcohol solvent is a hydrocarbon solvent); [col. 5, lines 16, 31 and 40]. The dispersoid is obtained in the absence of at least one acid, base or stabilizer at room temperature. The given temperature range is between 15°C and 25°C, that is room temperature; [col.8, line 43]. Considering claim 25, the proportion of aqueous medium to metal compound may be 2 moles/mole; [col.7, line 50]. If aqueous medium is a water-organic composition with water of , for example 99% or less than the proportion of water to metal compound is less than 2 moles/mole but more than 0.5; [col.7, line 38].

Considering claims 43 and 44, the dispersoid dispersed stably in organic solvent without aggregations. Clark teaches that smooth and clear sol is obtained; [col.5 and 7, lines 62 and 28, respectively]. Clark further teaches that the average particle size is between 10 and 100 Å; [col.5, line 30]. This range is within the range claimed in the instant application.

### ***Claim Rejections - 35 USC § 102/103(a)***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1794

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 26 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Clark (48013990). As it was shown above, Clark teaches all features of claim 24. Clark discloses the concentration of water in the mixed solvent of between 30 and 50%; [col. 7, line 40]. This range overlaps the range of instant application. Alternatively, it would have been obvious to one of ordinary skill in the art at the time of the invention to have selected the overlapping portion of the ranges disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, *In re Malagari*, 182 USPQ 549.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, see attached form PTO-892

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vera Katz whose telephone number is (571)270-7082.

The examiner can normally be reached on M - Th 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JENNIFER McNEIL can be reached on 571-272-1540. The fax phone

Art Unit: 1794

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Vera Katz/  
Examiner, Art Unit 1794

/JENNIFER MCNEIL/

Supervisory Patent Examiner, Art Unit 1794